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the laboratory, recently made a trip abroad investigating the European aeronautical laboratories. His report forms publication 2,273 of the Smithsonian Miscellaneous Collections, and is the third dealing with the interests and activities of the laboratory. It covers the equipment and scope of the principal European laboratories and shows what steps are being taken by them toward the perfection of the art of flying and the science of aeronautics. Accompanied by Assistant Naval Constructor Jerome C. Hunsaker, U. S. N., Dr. Zahm visited the principal aeronautical laboratories near London, Paris and Göttingen, to study, in the interest of the institution, the latest developments in instruments, methods and resources used and contemplated for the prosecution of scientific aeronautical investigations. Incidentally they inspected many of the best aerodromes or flying fields, and air crafts factories in the neighborhood of these cities, making copious notes on their observations. Aeronautical libraries were also visited, and comprehensive lists of the best and latest publications on this subject prepared for the use of the laboratory library. The following laboratories were examined: Aeronautical research and test establishments of the British government near London; the Institut Aerotechnique de St. Cyr and the Laboratoire Aerodynamique Eiffel, near Paris; the Göttingen Modelversuchsanstalt, in the city of that name, and the newly organized laboratory adjoining the flying field at Johannisthal, near Berlin, known as the Deutsche Versuchsanstalt für Luftfahrt zu Adlershof. All these establishments, the author states, are devoted both to theoretical and practical investigations, under the direction of highly trained men who not only serve as executives and initiate the researches, but lend their personal assistance in the various technical experiments. They differ as to endowment; those in England and Göttingen being supported by governmental grants, the others by private capital. The laboratories near London, at St. Cyr and Adlershof, are broad in their scope, but the Eiffel and the Göttingen laboratories confine their activities mainly to wind-tunnel experi-

ments. The experimental procedure of each is noted, and the buildings and apparatus of the different plants are carefully described. The purpose of the Langley laboratory is primarily to plan and conduct such theoretical and experimental investigations, tests and reports as may serve to increase the safety and efficiency of aerial locomotion for commercial advance and national defense.

UNIVERSITY AND EDUCATIONAL NEWS

MR. DANIEL BAUGH, the founder of the Baugh Institute of Anatomy, Jefferson Medical College, Philadelphia, has purchased and added to his original gift, the premises 236 and 238 Pine Street, as an addition to the school, and has given \$5,000 for the improvement and equipment.

THE new laboratory of medical sciences at the University of Chicago will be located on the west side of Ellis Avenue, and will have a frontage of approximately one hundred and eighty feet and a depth of about fifty feet, with wings at the north and south ends fifty feet in width and extending back eighty feet. The new building will consist of general and private laboratories, research laboratory rooms, class- and working-rooms, and also an assembly room in the rear, thirty by forty feet, to accommodate one hundred and fifty to two hundred students. The building, one story in height, will be of brick exterior. This new laboratory will be occupied by the department of hygiene and bacteriology and the department of pathology. The work is already under way, and it is expected that the building will be ready for occupancy at the opening of the autumn quarter on October 1. The cost of the building will be about \$50,000. The university board of trustees has voted to give the name of Howard Taylor Ricketts to the new laboratory. Dr. Ricketts, who was connected with the department of pathology at the university for eight years, died in Mexico from typhus fever, which he contracted while investigating the disease.

WARD L. RAY, B.A. (Oregon), M.A. (Wisconsin), professor of chemistry and physics at William and Vashti College, has been elected

president of the institution. The college, which is at Aledo, Ill., has received an addition to its endowment of \$25,000, a gift from Mr. Ed. Drury.

THE board of administrators of Tulane University of Louisiana have elected Mr. Henry L. Freeman to be acting assistant professor of mechanical engineering for one year to supply the place of Mr. J. M. Robert, who has been granted leave for one year. Dr. Wallace Wood has been elected dean of the department of dentistry to succeed Dr. A. G. Friedrichs, resigned.

DR. VIRGIL H. MOON, of the Memorial Institute for Infectious Diseases, Chicago, has been appointed head of the pathology department of the Indiana University Medical College at Indianapolis.

DR. JAMES W. JOBLING, formerly pathologist of the Michael Reese Hospital, has been appointed professor of pathology in the Vanderbilt University, Nashville, Tenn.

DR. ARNOLD V. STUBENRAUCH, for some years past in charge of the pomological investigations of the United States Department of Agriculture, has gone to California to become head of the new division of pomology in the University of California.

DR. VICTOR E. SHELFORD has been appointed assistant professor of zoology in the University of Illinois on part time and biologist in the Illinois State Laboratory. He will apply the experimental methods which he has developed to the problems of the state laboratory.

MR. RALPH MCBURNEY, graduate of the Virginia Polytechnic Institute and M.S. from Oklahoma Agricultural College, has been appointed instructor in the department of bacteriology of the Oregon Agricultural College.

MR. ROGER L. MORRISON, highway engineer with the United Gas Improvement Company of Philadelphia, who received the degree of master of arts at Columbia University last June after having completed the graduate course in highway engineering, has been appointed professor of highway engineering in the Agricultural and Mechanical College of Texas.

MR. A. J. MARGETSON, assistant professor at the City and Guilds (Engineering) College, Kensington, has been appointed to the professorship of civil and mechanical engineering at the Technical College, Finsbury, in the place of Professor E. G. Coker.

PROFESSOR LEON ASHER has been elected professor of physiology at Berne.

DISCUSSION AND CORRESPONDENCE

THE LIFE OF ISOLATED LARVAL MUSCLE CELLS

IN the course of some experiments on the culture of the cells of *Diemictylus* larvæ outside the body a few preparations were made of isolated larval muscle cells in the plasma of the adult animal. The usual hanging drop cultures were employed, and the slides were kept for a part of the time in an ice chest, and for a part of the time at ordinary room temperature. The muscular tissue was taken from the myotomes of the tail, and teased apart more or less so as to isolate some of the cells. The cells when isolated were not completely differentiated. They were from two to three times as long as thick and only their outer portion was fibrillated, leaving an inner core of undifferentiated protoplasm containing the single nucleus.

The isolated cells were examined from time to time to see if they were undergoing further differentiation. During the eight months in which they were kept under observation they had not changed their form, nor had they undergone any marked changes in structure. To all appearances they were healthy; at least they showed no signs of deterioration such as dead or dying cells usually manifest. But were they really alive?

This was tested by ascertaining if they would respond to a stimulus by contracting. A stimulus was applied by heating a needle and applying the point to the cover slip immediately over a particular cell. The muscle fibers so stimulated almost always responded by a vigorous twitch. Relaxation of the fiber followed almost immediately, and several contractions could often be evoked from the same cell. Muscle cells kept for eight months in